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SUSCEPTIBILITY TO JOHNE'S DISEASE IN RELATION TO AGE

BY

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The effect of age upon susceptibility to Johne's disease is of considerable practical importance as it is closely related to possible methods of control. The investigations of Meyer (1913) and M'Fadyean & Sheather (1916) suggested that the young animal is most susceptible. Hagan (1938) reported that in a heavily infected, experimental herd maintained under bad conditions of diet and hygiene, no animals exposed to natural infection contracted the disease after four months of age. There was also a marked resistance among animals over two years of age as none became clinically affected when given large doses of naturally infected material *per os*. From field experience in this country, however, it would appear that calves, separated from their dams at birth and isolated for the first 8 to 10 months of life in houses, can develop clinical disease later. Houthuis (1932) observed in Holland clinical cases in cows from 6 to 14 years of age. Doyle & Spears (1951) in an analysis of 648 clinical cases found that 41 occurred between the ages of 7 and 13 years ; it is impossible to say when these animals became infected, they may have contracted the disease during early life and remained carriers until some adverse condition reactivated it or they may have picked up infection during adult life. It is probable that many young animals, and perhaps more adult animals, contract infection and recover or remain permanent carriers without exhibiting clinical disease. If it is correct that animals can contract natural infection only during the first four months of life, as believed by Hagan (1938), the period of incubation must frequently be considerably longer than is generally stated.

PRESENT INVESTIGATION

The object of the present work was to determine whether adult bovines could be artificially infected with Johne's disease ; and, if clinical cases developed, to follow the course of the disease. It was necessary first to decide on the most suitable infective material to use and the route by which it should be given. As Johne's bacilli grow slowly on the media at present available, a considerable time elapses between the primary isolation and the obtaining of sufficient growth for experimental work ; and it is possible that during this period the virulence of the culture may decline. The only method at present available of determining the virulence of a strain and of estimating a minimum infecting dose would be by titration on bovines or goats and this would be a prolonged and uncertain procedure. M'Fadyean & Sheather (1916), in testing the immunity of vaccinated cattle, gave large doses (50 mg.) of culture intravenously, but this might be too drastic for testing susceptibility though the use of culture has the advantage of permitting the inoculation of a known number of bacilli. Having considered these various points it was decided to use as inoculum a suspension of mucosa of the small intestine of naturally infected animals and to give it *per os*. This method, although unsatisfactory from several aspects, ensured at least the use of virulent bacilli. It had the additional advantage of permitting a rough comparison of the results obtained with those reported by Hagan (1938). It may be argued that this method of infection was unduly severe and that such a vast number of Johne's bacilli could not be ingested under natural conditions. But it is questionable whether three large doses of bacilli *per os* is so severe as a large dose of culture intravenously or as the continuous ingestion under natural conditions of minute doses of the bacilli over a long period while the animal is being subjected to the stresses of calving, milking and sudden and marked variations in climatic conditions.

Experimental Animals.—In view of the object of the experiment it was essential that the animals used should be susceptible to Johne's disease ; that is, they should not have been in contact with the disease at any period of their lives. This condition might have been difficult to fulfil with purchased animals were it not that Ireland is almost free from the disease. Twelve cattle, six cows and six steers, varying in age from 17 months to six years, were presented to the laboratory for the experiment by the Department of Agriculture, Dublin. These cattle were bred and reared on one of the Department's farms where Johne's disease has never been known to occur and which has been free for many years from tuberculosis. It was important that the animals should be free from tuberculosis because of the considerable amount of " group " protection among the pathogenic acid-fast bacilli. They all passed the comparative tuberculin test in Ireland about two months before being shipped ; Nos. 1813, 1817 and 1819 showed some slight non-specific sensitivity. They were retested on arrival at Weybridge and all gave negative reactions to both tuberculins. The animals were strong, beef Shorthorns in excellent condition, but perhaps for the purpose of this particular experiment they were too strong constitutionally ; less robust animals of a dairy breed might have been more suitable. There is no evidence that one breed of cattle is more susceptible than another, but among the constitutionally weaker breeds *e.g.*, Channel Island cattle, the clinical phase of the disease is usually shorter and more acute than in stronger and hardier animals. Three control animals were included in the experiment : a Guernsey calf, 48 days old, purchased in this country and of unknown history ; and two seven-month-old goats bred at the laboratory. The 12 Shorthorn cattle were paired off according to age and one of each pair was housed throughout the experiment while the other was kept at pasture. The housed animals were fed hay, straw and a little kale and remained in excellent condition ; the diet of those at pasture was supplemented with hay during the winter.

The three control animals were housed.

Infective Material.—The infective material was obtained from six cows clinically affected with the disease. The small intestines were washed through with water, opened up and the mucous membrane scraped with a blunt knife. The scrapings were suspended in 0·85 per cent. salt solution at the rate of 20 grammes per pint. Microscopical examination of the suspensions showed them to be heavily infected with Johne's bacilli. This method of preparation is similar to that described by Hagan (1938) except that we used freshly prepared suspensions on each occasion. The 12 experimental animals were each given 1 pint of the infective

Results

The results are shown in the table and appendix.

Table I

Number of animal	Sex	Housed or at grass	Age at time of infective dose	Interval between infective dose and *post-mortem* examination	Result
1819	Cow	At grass	5 years and 9 months	22 months	Positive Johne's disease
1816	Cow	Housed	6 years	26 months	Negative
1820	Cow	At grass	4 years and 9 months	22 months	Doubtful
1815	Cow	Housed	5 years and 7 months	22 months	Positive Johne's disease
1817	Cow	At grass	4 years and 7 months	27 months	Negative
1818	Cow	Housed	4 years and 1 month	24 months	Doubtful Johne's disease
1810	Steer	At grass	3 years	26 months	Negative
1811	Steer	Housed	3 years	26 months	Negative
1813	Steer	At grass	2 years and 2 months	22 months	Positive Johne's disease
1809	Steer	Housed	2 years and 6 months	26 months	Negative
1812	Steer	At grass	17 months	17 months	Positive Johne's disease
1814	Steer	Housed	18 months	26 months	Negative
Controls					
1827	Steer	Housed	48 days	26 months	Negative
Goats					
1510	Female	Housed	7 months	12 months	Positive Johne's disease
1511	Female	Housed	7 months	22 months	Negative

material *per os* on three successive days. The controls were each given ½ pint of the infective material on three successive days.

Discussion

It will be seen from Table I that of the six animals at grass, three became affected with Johne's disease, one was doubtful and two negative, whereas of the six housed animals one only was positive, one was doubtful and four were negative. But two (1819 and 1820) of the animals at grass calved during the experiment and it is generally recognised that parturition is a predisposing factor to clinical Johne's disease. No. 1815, a barren cow, was housed and on *post-mortem* examination was found to be heavily infectde with the disease. On these facts it is not possible to draw any conclusion as to the relative effects of housing and grazing as a predisposing cause of the infection. To follow the course of the disease in those animals that became clinically affected, *post-mortem* examinations were deferred until 22 to 26 months after the infective dose ; had the experiment been restricted to determining whether infection could be induced, the optimum time for *post-mortem* examination would have been about six months after the infective dose. The main result obtained was that two adult animals over five years of age were successfully infected. Among those shown as positive or doubtful in Table I, with the exception of the animals Nos. 1812 and 1813 which were killed *in extremis*, none, as judged on appearance, would have died for some considerable time ; in fact, the tendency appeared to be towards prolonged unthriftiness with perhaps eventual recovery. This might suggest that when adult animals contract the disease, it usually tends to follow a chronic course ; and it may explain the unthrifty animals not infrequently seen in Johne's infected herds. Circumstantial evidence suggests that only a relatively small number of animals brought in contact with the disease for the first time as adults develop clinical infection. Wright (1951) mentioned that out of a large number of adult Irish cattle imported into England no cases of the disease had been seen, but that it often occurred in their progeny in this country. We have been informed by a dairy farmer who has imported many freshly calved Irish heifers that he could not remember having seen a case of the disease among them although they were in contact with varying degrees of the infection from the time of their arrival. It is probable that the majority of animals exhibiting acute disease with persistent diarrhoea contract infection during early life. The fact that calves which have been housed during the first 8 to 10 months of life subsequently develop clinical disease supports the view that the period of greatest susceptibility is considerably longer than is generally stated.

Summary

Two cows, aged five years and nine months, and five years and seven months, respectively, have been infected artificially with Johne's disease. Two other cows (1818 and 1820) showed clinical symptoms of the disease and a small number of Johne's bacilli were found during life in faecal smears ; but as on *post-mortem* examination only one Johne's bacillus was found in No. 1818 and none in No. 1820, both were classed as doubtful. The course of the disease in these four animals appeared to be towards prolonged unthriftiness with perhaps eventual recovery.

Acknowledgments.—Acknowledgments are made to the Department of Agriculture, Dublin, for the generous gift of acttle for the experiment ; to Mr. P. A. Rogan, Director of Veterinary Services, Eire, for kindly arranging for the selection, testing and shipping of the cattle ; to Dr. A. W. Stableforth, Director, Veterinary Laboratory, Weybridge, for obtaining the cattle ; to Mr. N. Hole for the complement fixation tests ; and to Mr. R. Martin and Mr. D. Andrews for technical assistance.

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Appendix

Positive Cases

Cow 1819

Aged five years and nine months when dosed. At grass. Artificially inseminated. Calved 10 months after the infective dose, and four months later showed clinical symptoms of the disease: loss of colour of coat, marked emaciation and severe intermittent diarrhoea. At this period numerous Johne's bacilli were present in faecal smears. The diarrhoea ceased, but the animal remained emaciated. It was killed 22 months after the infective dose and typical lesions of the disease were present. The small intestines were markedly thickened and showed numerous patches of congestion; there was marked inflammatory striation of the rectum. On section the mesenteric lymph glands showed the characteristic oedematous appearance, but no Johne's bacilli could be found in smears of the intestine or lymph glands, and sections and cultures were negative. It is frequently observed in naturally infected animals in which the clinical phase of the disease is prolonged that there is gradual decrease in the number of Johne's bacilli excreted in the faeces, and on *post-mortem* examination it may be difficult to demonstrate the bacilli in smears of the intestinal lesions. The animal would appear to have overcome the infection, yet it invariably dies, presumably as the result of the gross damage that has occurred in the intestines.

Steer 1812

Aged 17 months when dosed. At grass. Twelve months after the infective dose this animal started to lose condition, but although under constant observation diarrhoea was not observed. On account of emaciation and weakness it was killed 17 months after the infective dose. There was little evidence of disease in the intestines, but the mesenteric lymph glands showed on section the characteristic oedematous appearance. Smears and sections of intestine and lymph glands contained numerous Johne's bacilli. Cultures of the lymph glands were positive.

Steer 1813

Aged two years and two months when dosed. At grass. Diarrhoea started 21 months after the infective dose and persisted until the animal was killed one month later. During the last six months of life the colour of the coat had gradually faded from dark red to light yellow. The small intestine was thickened and there was marked corrugation of the mucous membrane. Mesenteric lymph glands showed on section the characteristic oedematous appearance. Smears of the mucosa of the small intestine and of the lymph glands contained numerous Johne's bacilli. Sections of intestinal wall and cultures of lymph glands were positive.

Cow 1815

Aged five years and seven months when dosed. Barren. Housed. Twenty-one months after the infective dose it had profuse diarrhoea for 48 hours. The colour of the coat changed gradually from a rich red to a light yellow, and the animal was in poor condition. It was killed 22 months after the infective dose. No distinctive lesions in intestines. Smears of the mucosa of the small intestine and of the mesenteric lymph glands showed heavy infection with Johne's bacilli. Cultures of lymph glands were positive. This animal was positive to the complement fixation test.

Doubtful Cases

Cow 1818

Aged four years and one month when dosed. Barren. Housed. Twenty-three months after the infective dose the animal had profuse diarrhoea lasting for 36 hours; examination of faecal smears at this time showed six typical Johne's bacilli. The animal was in poor condition and was killed 24 months after the infective dose. Owing to a misunderstanding only a piece of the small intestine was brought to the laboratory for examination. The wall of the intestine showed considerable thickening. Microscopical examination of smears of the mucosa revealed one typical Johne's bacillus and numerous acid-fast granules.

Cow 1820

Aged four years and nine months when dosed. At grass. Artificially inseminated. Calved 10 months after the infective dose. Shortly after calving the animal became emaciated and had several short attacks of diarrhoea. The colour of the coat changed from dark red to light yellow. A faecal smear examined during one attack of diarrhoea showed five typical Johne's bacilli. The animal was killed 22 months after the infective dose. The small intestines were thickened and showed considerable corrugation. The mesenteric glands showed on section the characteristic oedema. No acid-fast bacilli could be found in smears or sections of the intestine or lymph glands. Cultures of the lymph glands remained negative.

Controls

The purchased Guernsey calf, No. 1827, remained normal throughout the experiment and was negative on *post-mortem* examination. The animal, however, had become infected as it was positive to the complement fixation test.

Goat No. 1510 developed acute Johne's disease and died 12 months after the infective dose; it showed marked emaciation and profuse diarrhoea.

Goat No. 1511 remained normal and was negative on *post-mortem* examination.

LEGAL NOTES

Water Not Added to Milk: Veterinary Evidence

The conclusion reached by the public analyst that a sample of milk contained added water was successfully challenged at Shaftesbury Sessions recently, when Wallace Archie Rowsell, of West Coppleridge Farm, Motcombe, was found not guilty of selling milk not of the substance demanded. Dismissing the charge, Mr. E. A. Martin (Chairman) told Rowsell, "We are satisfied that the evidence which you have produced does rebut the certificate which has been presented by the prosecution."

Mr. R. L. C. Wood prosecuted for the County Solicitor and evidence was given by Thomas McCulloch, sampling officer, of 13, Garfield Avenue, Dorchester, who took samples of milk in transit to the Marketing Board and sent them to the public analyst. One of the samples was later certified as containing 3 per cent. added water.

Evidence was also given by B. Denman (deputy regional officer for the Milk Marketing Board, Yeovil), Adrian Michael Cull (assistant to the sampling officer), and P.C. G. Watts.

Defendant's Denial

Defendant denied that he had added water to the milk, or subtracted anything from it. To his knowledge no one else had either. "I have been farming all my life and was not involved in any trouble until a few months ago when I was proceeded against in connection with milk, at Gillingham," he stated. "Since then I have been very careful to see that nothing could go wrong. I had new rubbers put on everything in the cooling plant and had locks fitted on the dairy. I have taken every precaution to ensure that the milk is as drawn from the cows," he added.

Evidence was given on his behalf by Mr. William Blanshard, veterinary surgeon, of Gillingham, who did not agree with the conclusion of the public analyst. He maintained that the samples were taken at a season when the solids were gradually deteriorating and pointed out that only four of the cows could not be described as aged. He understood that certain animals were watered before milking and contended that the particular sample which showed less solids than normal was from the milk of these particular cows.

Defendant's son, Edmund J. Rowsell, also gave evidence.

"Whereas it has always been our pride that a man is innocent until he has been proved guilty, the Ministry, in their wisdom in cases of this type, have reversed the position and state, in effect, 'We produce a certificate and you are guilty until you have proved yourself innocent,'" declared Mr. G. N. Porter (defending). "Some of us think that is wrong." He pointed out that defendant had not been in trouble about the milk from his farm until a few months ago. "Is he a man who is going to sacrifice his reputation, risk considerable penalty for the sake of a few pence, which is the most it could possibly amount to?" he asked. "I am asking you to say that this is absurd and that this sample is genuine milk as drawn from the cows."

LABORATORY DIAGNOSIS OF PREGNANCY IN PIGS

BY

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Cowie, in his monograph "Pregnancy Diagnosis" (1948), suggests that the only laboratory tests likely to be of value for the diagnosis of pregnancy in the pig are those involving the detection of oestrogenic hormones in the urine. Küst & Struck (1934), and others cited by Cowie, have shown that oestrogens are present in the urine of the pregnant pig only at certain stages of gestation, *viz.*, from the 23rd to the 31st day after service and during the last four weeks of pregnancy. These results, which were obtained using a biological method of assay, were confirmed by Roth, Mayer & Bogart (1941) using a chemical test. They claimed that it was possible to diagnose pregnancy in the pig between the 21st and 32nd days by such a method. On the other hand, examination in this department of sporadic samples sent in by veterinary surgeons tended to throw doubt on the practical value of such tests and it was therefore thought worth while carrying out a more comprehensive investigation of the above claims. During the last two years it has been possible to examine 375 samples of urine from Large White pigs in which details of service date and farrowing date were available.

The purpose of this paper is to confirm the optimum sampling times and to show the degree of accuracy which may be expected.

Methods

Urine samples were collected during micturition and it was found that this was most easily carried out when the pigs came out into the runs for the morning feed.

The method of bio-assay described by Miller & Day (1939) and the modified Cuboni test devised by Roth, Mayer & Bogart (1941) were used. As recommended by Roth *et al.*, in the case of all doubtful reactions we used Kober's method for the removal of green fluorescence caused by substances other than oestrogens.

Results

(*a*) *Biological Test*

Table I shows the results of testing for oestrogens in urines from pregnant sows at different stages of gestation.

Table I
Biological Test on Pregnant Sows' Urine

Days after service	0–19	20	21	22	23	24	25	26	27	28	29	30	31–84	85–term	Total
Samples examined ...	10	3	5	2	3	3	8	17	4	5	5	2	105	40	212
Positive	0	0	1	0	2	2	4	14	4	4	4	1	13	16	65
Negative	10	3	4	2	1	1	4	3	0	1	1	1	92	24	147
Percentage correct ...	0						63·2						12·4	40·0	30·7

A total of 212 samples were examined of which only 65 (30·7 per cent.) gave positive results. For the purpose of analysis the gestation period has been divided into four stages based on the findings of Küst & Struck (1934). Table I shows that in these the highest percentage of positive results was 63·2 and that this was obtained from samples collected between the 20th and 30th day after service; from the 85th day to term and from the 31st to the 84th day the number of samples which gave a positive result represented 40 and 12·4 per cent. respectively of those examined. All the examinations, 10 in number, made prior to the 20th day were negative. It will be seen from Table I that in the 20- to 30-day period the highest proportion of positives was obtained from the 25th day onwards.

In view of the degree of accuracy which the preliminary survey showed could be obtained from the examination of samples collected from 20 to 30 days after service, it was decided to carry out a further series of tests on urine collected exclusively within this period. For the convenience of those collecting the samples, the stage at which sampling was to be carried out was fixed as the 25th to 27th day after service, which from the above results was obviously a period in which favourable results could be expected. The results of the examination of 163 samples obtained at this period are shown in Table II.

Table II
Biological Tests on Urine collected 25 to 27 Days After Service

	Number of samples examined	Positive	Negative	Percentage correct
Pigs subsequently confirmed as :—				
(*a*) *Pregnant* ...	94	58	36	61·7
(*b*) *Non-pregnant* ...	69	4	65	94·2

(*b*) *Chemical Test*

Thirty-eight samples of urine collected between 25 and 27 days after service were subjected to the Cuboni (chemical) test to determine its accuracy when used at this stage of gestation. For the purpose of comparison the biological test was also carried out on the same samples, 20 of which came from pigs which were subsequently proved to have been pregnant at the time of sampling and 18 which were not. The results of these tests are shown in Table III.

Table III

	Biological Test	Cuboni Test	
		Positive (8)	Negative (12)
(*a*) *Pregnant pigs*	Positive (16)	8	8
	Negative (4)	0	4
		Positive (4)	Negative (14)
(*b*) *Non-pregnant pigs*	Positive (3)	1	2
	Negative (15)	3	12

In the case of the samples from the 20 pregnant pigs, a positive reaction was recorded for eight samples with the Cuboni test and 16 with the biological test. In the 18 non-pregnant pigs the Cuboni test gave four "false" positives while the biological test gave three.

Discussion

In as much as our findings show that positive reactions were found mainly in the 20- to 30-day period and in the period 85th day to term, our results confirm those of Küst

& Struck. However, in view of the higher oestrogen level demonstrated by these workers in the latter period it is difficult to explain the fact that we found a lower percentage of positives during that period than in the earlier period. The degree of accuracy obtainable using the biological test within this earlier period (20 to 30 days post service) was disappointingly low, and although a positive reaction may be regarded as fairly reliable, obviously much less significance attaches to a negative result.

Our results show the Cuboni test to be even less efficient than the biological test as a method of pregnancy diagnosis in pigs. In this they do not confirm the findings of Roth, Mayer & Bogart, who claimed to be able to "clearly differentiate the pregnant from the non-pregnant animal" using the chemical test.

It is obvious, therefore, that the present laboratory methods of pregnancy diagnosis in the pig are of limited value in their field application.

Summary

1. Pregnant pig's urine collected between 20 and 30 days after service and from the 85th day to term gave a higher percentage of positive reactions to the biological test than did samples obtained at other stages of gestation.

2. Of these two periods greater accuracy was found in the earlier one.

3. The accuracy of diagnosis when samples were examined 20 to 30 days after service was little more than 60 per cent. correct in the case of pregnant pigs although almost 95 per cent. correct in non-pregnant pigs. The chemical test was found to be of much lower efficiency.

4. The fact that the tests are only of value at certain stages in gestation and are even then relatively inefficient, indicates that pregnancy diagnosis in the pig by the laboratory methods now advocated is of very limited practical value.

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Weekly Wisdom

Scientists

There are two classes, those who want to know, and do not care whether others think they know or not, and those who do not care much about knowing, but care very greatly about being reputed as knowing.—Samuel Butler's Notebooks [Jonathan Cape] (p. 119).

ANIMALS I HAVE MET

THE ELEPHANT

BY

D. D. OGILVIE

There are only two living species of elephant, the African and the Indian. As animals go, the elephant is a very old type, a model which has never been brought up to date by stream-lining or chromium plating or any of the other devices of the modern body builder. But it has certain distinctions, notably the possession of the longest nose and the longest gestation period of any of the mammals except perhaps the whale, which one feels should not really qualify for consideration in such matters anyway.

Although elephants in the wild state are now confined to Africa and Asia there was a time, of course, when they roamed over Europe and elsewhere and one occasionally hears news of mammoths which are discovered in the most unexpected places. Some time ago I met a man who had been present in the far and snowy North at the digging out of an ice-preserved mammoth. He enjoyed a steak from this beast, but despite the excellent refrigeration to which it had been subjected for an unknown number of tens of thousands of years he reported that it was "somewhat tasteless."

The average observer often has some little difficulty in distinguishing between African and Indian elephants. If he is in Africa and meets an elephant it is a reasonable premise that this usually is an African elephant and vice-versa, as it were, in India. But troubles arise when he meets an elephant in a circus or at a zoo, or ambling down Tooting Broadway, or even pink and shiny, at the foot of his bed after a particularly heavy evening.

The secret of differentiation, as they say in scientific circles, lies in the ears. Not in the ear holes or in any marked peculiarities of hearing, but in the flaps. The African elephant, like a certain famous film star, has ears about three times as big as they should be, and, indeed, as he lollops away from you in the dusk with his ear flaps held well out you feel that he may well take off at any moment. In fact, if it is dark enough he is quite a puzzle. His tail hangs down much in the same way as does his trunk and, as in the case of some American cars, it is not easy in a moment to tell whether he is coming or going. With a rogue elephant this can make things quite awkward.

There are, of course, other differences between African and Indian elephants. The African elephant, being undomesticated and free from most of the world's troubles, has a smooth and serene brow, but the Indian, like a dyspeptic Brains Trust member, has a furrowed frontal region adorned with two large bony knobs which somehow make him look more like an office worker and less like the outdoor enthusiast which he really is. This impression is heightened by the fact that the African elephant is the tall muscular member of the family; the sort of 10 miles before breakfast type with a stroll after dinner thrown in for good measure. At 11 feet he wins the height competition by about a foot and at anything up to 5 tons weight he has it on the scales by a least 10 cwt.

Most people know, of course, that elephants never forget. But despite this they are not very sensitive creatures. Both their feelings and persons are not easily injured. Being extremely thick skinned these lumbering pachyderms are more or less immune to both rude words and to sticks and stones. To shoot them—unpleasant thought—one requires

a miniature cannon, plenty of nerve, and a knowledge of the small number of vulnerable spots which exist. Elephants are particularly well armoured up front and can easily " head-out " a straight-on shot, much to the consternation of and possible danger to bystanders.

Despite all their physical toughness, however, elephants generally make the happiest and most sentimental of families. They can often be seen in the evening standing around with trunks entwined, no doubt passing the time of day while the children play nearby, sometimes pretending to be lost and uttering plaintive cries to distract mother's attention and take her away from her gossip, which, of course, is all very like suburbia late on a warm summer afternoon.

The team spirit is perhaps better developed in elephants than in any other species. When attacked the herd always sticks closely together and never scatters. A wall of defence is formed with the bulls on the outside and the youngsters in the middle peering anxiously through their mothers' legs. If one is wounded, it is at once supported by the flanks of others and if a retreat is required it is transported by them into the thicker bush.

The most famous part of the elephant, of course, is his trunk. This amazing organ is a marvel of strength and delicacy. With it he can lift and toss a ton of timber and as easily pull a blade of grass. There is an elephant in Dublin Zoo which pays for its keep by gathering pennies which are thrown to it and which it delicately picks up from the floor. No doubt, one day, it will show equal delicacy with a bottle of Guinness if the brewers wake up to its publicity possibilities.

The trunk is flexible at every point and can be moved at speed. It contains no bone but is compactly built up of tough muscle and sinew in such a way as to challenge the sharpest knife. It is practically without food value even to the native who happily ingests more or less anything which can be swallowed. To the elephant the trunk is of most importance as a smelling apparatus. Indeed the elephant's trunk is perhaps the world's most sensitive odour detector. This is as it should be for the elephant depends more on smell than on any of the other senses. The elephant's eyesight is not in the same class. It has little range and actually the elephant sees much better on either side than straight ahead. Hence, when it charges it always does so in an arc so that it can keep its objective in view.

Elephants are fond of water and consume enormous amounts, but if necessary they can go a long time between drinks, a valuable characteristic both in man and beast. As is well known, they wash themselves by squirting water along and over their backs. A variation of interest is their habit of totally immersing themselves and walking along deep river beds with only their snouts above the surface like submarine snorkels. This remarkable Loch Ness-like sight has to be witnessed to be believed.

When enraged, elephants cock their ears and lash their tails and they will often create a dust cloud with their feet and trunks which renders them almost invisible. The first herd of wild elephants I ever saw was in Tanganyika. We swooped down on it from the air in an old Rapide aircraft, flattening out only a few hundred feet above the bush. Within a matter of seconds so much red dust had been thrown up into the air that the herd had all but disappeared.

Two trophies are commonly retained by hunters of elephants as evidence of their prowess. These are the tusks and the feet.

The tusks, of course, are especially valued. So far as the elephant is concerned they are not only weapons of offence and defence, but implements with which to grub up food. The tusks of African elephants are generally thicker and larger than those of the Indian type and may weigh up to about 250 lb. each. Indeed the most magnificent examples often become quite a burden to their owners. Old bulls with extra heavy ivories often have a hard struggle to keep up with the herd and sometimes can be seen, panting a little, with their tusks placed in tree forks to rest their weary neck muscles. In ripe old age or when diseased, tusks may fall out at the roots and no regeneration occurs, but if a tusk breaks it grows again quite quickly. Ivory has been valuable throughout the ages, but recent advances of the plastics industry have now reduced the demand for it. Even the traditional " ivories " of the billiard table are now, alas, mere products of the chemical industry.

The elephant's foot is almost as remarkable as its trunk. The elephant walks on its toes, which are encased in a bag-like skin with a well-padded base. The feet swell out when weight is put upon them and contract when the pressure is removed. Thus elephants can move about happily in swamps without getting stuck in the mud, their feet shrinking and hence reducing suction each time they move along. On such feet, too, elephants can walk quite noiselessly. When feeding in the forest they make a most fearful din. Whole trees crash and the woods generally sound as if a major storm was in progress—but when in danger the whole herd moves off like a gentle breeze, not even snapping a twig.

Once in Baroda State in India I was garlanded by an elephant which began the ceremony by doing a sort of soft shoe dance on a concrete floor. Apart from the tinkle of bells on its legs it was quite noiseless. And recently in Ceylon we saw an elephant do a rumba with less noise and as much grace as many acknowledged ballroom experts.

One could go on for a long time in this vein, for most people have a soft spot for this Charlie Chaplin of animals with his much wrinkled suit, baggy at the knees and rubbed at the elbows, always looking as if he had just slept in it. One could write about baby elephants, born after a gestation of nearly two years and not weaned until another two years have passed; of the longevity of elephants reputed by some to exceed 100 years, but now generally agreed to be only about 50 to 60 years; and of the habit of dying elephants of leaving the herd and wandering off alone with possibilities of fabulous bone piles which have, however, never yet been discovered. But most of all one could talk of pink elephants or near white elephants as they really are. These albinos, beloved alike by dypsomaniacs and organisers of church bazaars, are holy animals in Siam and as such are maintained in style and comfort. In olden days when subtlety entered into the conduct of State affairs, it was a royal privilege to gift white elephants to those who were in disfavour. Such elephants could not be shot, sold or even worked and their maintenance soon reduced the unfortunate recipients to poverty. Hence the white elephant in modern life and all its dangers.

For myself I prefer the pink elephant, for it sits neatly on my mantelshelf, can be viewed in comfort and safety from my armchair, and if all goes well will have disappeared by the morning.

CLINICAL COMMUNICATION

MASS SHOCK PHENOMENON IN SHEEP

R. N. PHILLIPS, M.R.C.V.S., D.V.S.M.,
IPSWICH

Subjects.—A flock of cross-bred ewes, about 60, with lambs at foot. Generally in average to poor condition according to whether they were primi- or multi-gravid.

History.—The flock had been folded on cocksfoot, which was not quite up to quality for saving as seed. Shearing of the ewes began on the morning of Thursday, June 12th, 1952, and continued until all had been done, finishing by noon on Saturday, June 14th. Shearing was done in the field.

On Saturday afternoon and evening there was very steady rain, followed by a drop in temperature, and change in the direction of the wind.

I was called on the morning of Sunday, June 15th, to find four ewes dead and three moribund; these latter were shot. Half the remaining ewes were standing about or hobbling along, some eating and some cudding, but with all four feet together—reminiscent of a horse with grass sickness. Other animals were down and grinding their teeth.

Post-mortem Examination.—Clotted plasma was found throughout the body, indicating a peripheral failure. The jelly-like accumulations in the mesenteries reminded one of oedema of the bowel in swine. Similar masses of jelly were found attached to the parietal pericardium and mediastinum; joint capsules and even the bone marrow of the femur contained it. Culture proved this to be completely sterile.

Sequelae.—The V.I.O. was contacted and came on Monday, June 16th. By this time it was expected that half the flock would be dead but no more had died; although some were ill and unable to rise most of those ill the day before had recovered. Not a single lamb (none of which had been shorn) was ever affected. The farmer had drenched the recumbent sheep with a few doses he had left over of a proprietary "exhausted lambing ewe reviver" and all recovered. Shelters were also made for the animals from bales of straw and tarpaulins.

The precise weather conditions were as follows:—

Day	Temperature			Rain	Duration of rain	Wind
	Min.	Max.	10 a.m.			
Thursday, June 12th ...	53	72	68	·3 mm.	? dew	S.E.
Friday, June 13th ...	50	70	61·5	Trace		E.N.E.
Saturday, June 14th ...	56	70	65	9 mm.	4·6 hours	N.W.
Sunday, June 15th ...	50	57	49·8	3·5 mm.	2·4 hours	N.N.E.

It will be seen that 9 mm. of rain fell in four and a half hours on the Saturday afternoon, coupled with a 20° drop in temperature which was maintained on Sunday morning. There was no shelter in the field and wind had changed to the N.E.—it felt very bleak.

Discussion.—The phenomenal clinical syndrome described above appears to have been brought about by a series of cumulative factors, namely, the shearing of ewes which had stood the strain of lactation, as a result of which they were unable to withstand exposure to rain and the veering of the wind, which in itself in the absence of shelter would lower the body surface temperature, all coinciding with a marked drop of 20°F. in shade temperature.

Acknowledgments.—My thanks are due to A. R. Wilson, Esq., of the Belstead Hall Climatological Station near Ipswich, for supplying the meteorological data (the station is situated about a mile and a half from the field where the sheep were). Thanks are also due to the Veterinary Investigation Department, Cambridge, for cultural examination of the organs.

REVIEWS

[Handbook of Basic Microtechnique. By Peter Gray, PH.D., D.I.C., Head, Department of Biological Sciences, University of Pittsburgh. (Pp. 141 + viii. 57 figs.) London: Constable, 10, Orange Street, W.C.2. 12s. 6d. (1952; first English edition 1953).]

Laboratory technique can be learnt adequately at the bench and by dint of much practice one may acquire competence. Handbooks are useful aids and guides for the beginner and serve as reference books for the expert but are not a substitute for practice at the bench. This handbook is intended for use as an aid and as such it serves its purpose for those who have to prepare animal or plant material for microscopical examination. The author states that its purpose is to supplement a larger work which is in course of preparation—Gray's "Microtechnique."

Nine chapters in part one tell us of the materials and equipment necessary for the jobs to be done, the methods of fixation of material and the ways in which such preparations may be stained and mounted. Part two gives, in some detail, 15 examples of specific pieces of work. They range from the "preparation of a wholemount of a chicken embryo in balsam after staining in Carazzi's alum haematoxylin" to the "preparation of a bacterial smear stained by the technique of Lillie."

The most valuable information in the book may be found in the formulae for stains, fixatives, mounts, mordants and embedding media. Technicians in departments of pathology, histology and cytology will find it serviceable and will learn of the names used in U.S.A. for methods and materials; they may recognise the method or material under another term.

* * * * *

[Modern Kennel Management. By Olwen Gwynne-Jones. Popular Dogs Publishing Co. Ltd., Hutchinson House, London, W.1. Price 12s. 6d.]

This book for the layman, by the layman, has the unusual and welcome feature that it has a contributed section by a veterinary surgeon and expresses throughout the value of co-operation between the dog-breeder and the profession. While essentially a book for the beginner wishing to run a breeding kennels it is obviously written from practical experience. The author has a gift for describing routine facts and procedures in a readable and commendably lucid manner.

She commences by comment on choice of breed in relation to circumstances and the situation of the kennels and goes on to describe types of kennel, run and equipment, daily

routine feeding and management of the breeding stock. There is a long and in the main excellent section on general, medical and surgical nursing, marred only by a slight tendency to repetition and occasional dogma. This is preceded by a survey of minor ailments in which the author is not on quite such firm ground and there are a few notable omissions. In a chapter in which otitis, parasitic skin diseases and the differences between sarcoptic and demodectic mange are discussed, and in which the author revels a little self-consciously in terms like "non contagious dermatoses" it is, for example, remarkable to find no reference to the otodectic mite as a cause of otitis. More simplicity and the avoidance of long words would have improved matters. Many also will disagree with the suggested use of methylated spirits and water on an inflamed ear. In the hands of a layman who may not have experienced its effect on his or her own cut finger it could be responsible for considerable discomfort.

The next section, headed "Veterinary," is written by F. Andrew Edgson, M.R.C.V.S., and is a commendable effort to put over the preventive aspect of veterinary medicine and the value of early diagnosis and professional advice to the lay public.

The book concludes with a helpful section on Kennel Club Regulations, showing, advertising, sales, etc.

The penultimate chapter on "dog-breeding etiquette and some types we all know" must have given the author a modicum of feline fun and indicates that dog-breeders are derived—as are the rest of us—from common human clay.

The book has a small number of illustrations which in the main enhance its value, though in the veterinary section the illustration of the larynx may be confusing to the layman who only wants to know what he is seeing when he looks into the widely open mouth of his dog; also the X-ray photograph of the hindquarters of a cairn like many such reproductions conveys little to those who behold it. This is in sharp contradistinction to the excellent photographs of a distemper case.

Generally speaking, we have here a useful book to recommend to the client who is commencing or already has an interest in the dog showing world and wishes to run his or her own kennels on commonsense lines.

ARGENTINE JOCKEY CLUB SEIZED BY STATE

In a message to his paper from Buenos Aires on May 21st., *The Times* Correspondent reports that the Jockey Club of the federal capital of Argentina, whose palatial premises in Calle Florida, Buenos Aires, were burnt down by incendiaries on the night of April 15th, is about to be dissolved and its functions taken over by the State. The Government has submitted a Bill to Congress dissolving the Jockey Club both as a social centre and an association for the improvement of horse breeding. The Bill provides that all the property of the Jockey Club shall pass immediately into the hands of the Argentine State and that henceforth all racecourses and betting activities throughout Argentina shall be administered by the State if it is considered desirable for moral or economic reasons.

"As Peronistas have an overwhelming majority in Congress, the Bill's passage is a foregone conclusion. The Jockey Club owns two racecourses and two golf courses in greater Buenos Aires. The Bill does not indicate whether any compensation will be paid for the expropriation. It will be recalled that General Perón in his annual presidential message to Congress on May 1st denounced the Jockey Club as a stronghold of reactionary oligarchy and accused its members of having interfered in politics."

VICTORIA VETERINARY BENEVOLENT FUND

MEETING OF COUNCIL

A meeting of the Council of the Victoria Veterinary Benevolent Fund was held at No. 10, Red Lion Square, London, W.C.1, on Monday, March 30th, 1953, when the following members were present: Professor J. B. Buxton (President) in the chair, Mrs. D. I. Glover, Mrs. C. L. Graham (President of the Ladies' Guild), Professor J. McCunn, Mr. Arnold Spicer and Major W. H. Wortley.

Mr. C. W. Francis, Secretary, was in attendance.

Minutes.—The minutes of the previous meeting, held on February 5th, 1953, having been published, were taken as read and signed as correct.

Illness of Professor G. H. Wooldridge.—The President informed the meeting that the absence of Professor G. H. Wooldridge was due to his being seriously ill and suggested that the Secretary be asked to convey to him their sincere wishes for a speedy and definite recovery to good health. This was warmly supported by the meeting.

Apologies for Absence.—Apologies for absence were received from the foilowing: Messrs. E. P. Barrett, H. Bell, H. W. Dawes, Major J. J. Dunlop, Professor R. E. Glover, Mr. G. N. Gould, Captain T. M. Mitchell, Professors W. M. Mitchell, P. E. Mullaney, C. W. Ottaway, Captain A. Whicher and Dr. W. R. Wooldridge.

Correspondence.—(*a*) A letter was read from Mrs. M. E. Davies, daughter of the late Mr. W. D. Rees, informing the Council that her late father had left the sum of £100 to the Fund, which she was enclosing. The Secretary's reply was also submitted, and approved.

(*b*) The Secretary read a letter dated March 10th, 1953, from a firm of solicitors, enquiring if the Fund would act as Trustees and carry out the terms of a Trust for which a client of theirs proposes to make provision in his will, the terms of such Trust being to pay the income to a specified person for life and at death to use the sum settled for the benefit of the Fund.

After deliberation, it was unanimously agreed:—

(i) That if the Memorandum and Articles of Association so permit the Council will be pleased, in due course, to accept the Trusteeship.

(ii) That the letter be referred to Mr. R. V. Thatcher, Solicitor to the Fund, for his consideration, and if necessary, in company with the Secretary, to call on the said solicitors to discuss such special wording as may be considered desirable for inclusion in their client's will.

Nominations to Council.—The Secretary reported the following nominations to Council:—

By the South-Eastern Veterinary Association, of Dr. R. F. Montgomerie, PH.D., F.R.C.V.S., in the place of Professor L. P. Pugh, M.A., B.SC., F.R.C.V.S.

By the South Wales Division, of Mr. L. E. Hughes, M.R.C.V.S., D.V.S.M., N.D.A.

Investments.—The Treasurer reported that he had authorised the balance of £156 2s. 11d. standing in the Wortley Axe Account, as shown by the recent audited accounts, to be invested in 2½ per cent. Funding Stock, 1956-61, this being the security in which all previous balances in this account had been invested.

The action of the Treasurer was approved.

ACCOUNTANT'S REPORT

The following report of the Accountant was read and approved and the Secretary was instructed to express the

thanks of the Council to the respective donors:—

Since the previous meeting, the following special subscriptions and donations have been received:—

	£ s. d.	£ s. d.
Legacy		
W. D. Rees, M.R.C.V.S., of Penygraig ...		100 0 0
Subscriptions		
"Anonymous" (per Eastern Counties Veterinary Society)	2 2 0	
South Wales Division (Annual)	2 2 0	
Veterinary Medical Association of Ireland (Individual subscriptions and miscellaneous amounts—1952)	55 0 4	
		59 4 4
Donations		
H. E. Cross	5 5 0	
Eastern Counties Veterinary Society ...	10 0 0	
Midland Counties Veterinary Association	5 0 0	
National Greyhound Racing Club ...	10 0 0	
North of Ireland V.M.A.	20 0 0	
Royal (Dick) School of Veterinary Studies, Veterinary Students Committee (Annual Ball)	10 10 0	
Scottish Metropolitan Division	10 0 0	
Yorkshire Veterinary Medical Society ...	5 5 0	
A. Whicher	10 6	
		76 10 6
Collecting Boxes		
Eastern Counties Veterinary Society ...	5 1 6	
Scottish Metropolitan Division	3 9 3	
South Eastern Midlands V.M.A.	4 15 8	
		13 6 5
		£249 1 3

Covenants and New Subscriptions

Eighteen completed forms of covenant for payment of annual subscriptions have been received. Of this total 15 are renewals of expired covenants, and three are from new covenanters.

Twelve forms of standing order for payment of annual subscriptions by bank have been received. Nine of these new subscribers are members of the East Midlands Division.

Cases

No. 197.—Widow; aged 55; five children, ages 20 to 35. Receiving grant of £1 per week.

No. 199.—Widow; aged 65; 11 children between 25 and 40. Receiving grant of 30s. per week.

No. 261.—Widow; aged 67; two daughters, ages 23 and 24.

These cases having recently been reviewed by a special Committee, which had submitted to this Council its decision that the recipients could no longer be considered deserving of further assistance from the Fund, it was resolved:—

(*a*) That the allowances in these three cases be discontinued after the grant to be made to them in April.

(*b*) That the grateful thanks of the Council be conveyed to the special Committee for the valuable help it has given in these cases.

No. 287.—M.R.C.V.S.; aged 36; married; one child. Fractured leg. In view of the necessity for this recipient to remain in hospital for a further operation and having regard to the report received from Professor H. G. Lamont on this case, it was decided that the grant of £1 per week be continued for a further period of six months, if in the opinion of the Executive Committee this should be considered necessary.

No. 289.—Widow; aged 78; in very poor health; three sons, 55, 54, 53, and three daughters, 56, 48 and 51 (married). Illness in family generally and sons unable to give appreciable help. Income, £71 p.a. under a Trust, plus O.A.P. and supplementary allowance totalling £1 16s. 6d. per week. Rent, etc., £117 p.a. Report from a local veterinary surgeon supporting the application.

It was resolved "That a grant of £2 per week be made in this case as from April 1st."

No. 290.—Widow; aged 54; two children, aged 17 and 14.

The Secretary reported that since the case was considered at the last meeting he had received a letter from the solicitors who had been acting on her behalf since the death of her husband, in which they stated that a life pension of £61 per year had been awarded to her by the University Court of a University at which her husband had been a lecturer.

It was resolved "That notwithstanding this addition to her income the grant voted at the previous meeting for the children's education be not disturbed."

Draft Annual Report.—The draft annual report was submitted and approved for issue to the members prior to the annual general meeting.

Date of Next Meeting.—It was agreed that the date of the next meeting, which must be held not later than June 24th, 1953, be left in the hands of the Executive Committee to arrange.

Vote of Thanks.—There being no further business to transact, the meeting terminated with a cordial vote of thanks to the President for his conduct in the chair.

TOWARDS A SOUTHERN COUNTIES TUBERCULOSIS-FREE AREA

In its issue of May 15th, the *Western Gazette* records that when he addressed members of the Warminster branch of the National Farmers' Union recently, Mr. R. S. Kyle, divisional veterinary officer of the Animal Health Division of the Ministry of Agriculture, disclosed that in Wiltshire they had now got about 100,000 head of cattle that were being kept tuberculosis-free by official testing. The great majority of them were fully attested.

Their neighbouring counties—Hants, Dorset and Somerset—compared quite favourably with them and they were getting to a stage now where it could be considered they were ready for the establishment of a belt in that area. They were in Wilts. and the other counties he had mentioned, in a position to have a belt that could be established pretty well as an eradication area.

Mr. Kyle said the Ministry had reckoned that to get this country free from all tuberculosis in their dairy herds was going to take somewhere about 25 years, but during the last two or three years progress had been so rapid, by pressure from farmers themselves, that they (the Ministry) had not been able to keep pace with it. It had never been visualised that there would be such a response.

* * * * *

B.V.A. PENSION AND FAMILY PROVISION SCHEME

B.V.A. Members will be pleased to know that the Legal and General Assurance Society, who underwrite this Scheme, have reduced their rates of premium for new assurances.

The Scheme is designed to provide a pension on retirement for life; alternatively, in the event of the Member's death before retirement, his widow would receive a similar pension, which would commence immediately.

The terms are more favourable than those available to the general public, and members interested should contact the Brokers for the Scheme, Messrs. Walter Herriot & Co. Ltd., Regis House, King William Street, London, E.C.4, for a detailed illustration, stating their date of birth.

* * * * *

Pig smuggling across the border from Shropshire to Montgomeryshire was alleged at a meeting of the Montgomery County Executive of the N.F.U. at Newtown. Mr. A. R. Tutton said the pigs were getting into Welshpool Smithfield by devious routes and in view of the swine fever situation farmers in the area were getting very worried.

B.V.A. ANNUAL CONGRESS IN ABERDEEN

SEPTEMBER 6th to 12th, 1953

Provisional Programme

N.B.—All meetings will take place in the Music Hall unless otherwise stated.

SUNDAY, SEPTEMBER 6th

8.00 p.m.
"At Home," given by the North of Scotland Division, B.V.A., at the Caledonian Hotel.

MONDAY, SEPTEMBER 7th

10.00 a.m.
Civic Welcome by the Hon. the Lord Provost of Aberdeen (Rev. Professor John M. Graham, M.A.), followed by Opening of Congress by the Lady Tweedsmuir, M.P.

10.30 a.m.
Opening of Exhibition of Surgical Instruments, Drugs, etc., by the President, B.V.A.

2.30 p.m.
Paper : "Recent Advances at Weybridge," by Dr. A. W. Stableforth, M.R.C.V.S., D.V.S.M., Director, Ministry of Agriculture Veterinary Laboratory, Weybridge.
Opener : Mr. D. L. Hughes, F.R.C.V.S., DIP. BACT.
Chairman : Professor A. Robertson, M.A., PH.D., B.SC., M.R.C.V.S., F.R.I.C., F.R.S.E.
Recording Secretary : Mr. L. G. Donald, B.SC., M.R.C.V.S.

8.00 p.m.
Civic Reception and Dance, given by the Lord Provost and Corporation of the City of Aberdeen in the Beach Ballroom.

TUESDAY, SEPTEMBER 8th

10.00 a.m.
Paper : "Pig Housing and its Relation to Health," by Mr. D. S. Soutar, A.R.I.B.A., A.A. DIP., A.R.I.A.S., Farm Buildings Department, North of Scotland College of Agriculture.
Openers : Mr. D. F. Oliver, B.SC., M.R.C.V.S., and another.
Chairman : Mr. H. M. Wilson, M.R.C.V.S.
Recording Secretary : Mr. M. Maclellan, M.R.C.V.S.

10.15 a.m.
Ladies' Guild Annual General Meeting.

2.30 p.m.
Demonstration (Methods of Pig Housing) at Craibstone Farm and elsewhere, arranged by Mr. D. S. Soutar, A.R.I.B.A., A.A. DIP., A.R.I.A.S.

2.30 p.m.
Ladies' Excursion, to Paradise Woods and Alford.

8.30 p.m.
Ladies' Guild Dance at Northern Hotel.

WEDNESDAY, SEPTEMBER 9th

10.00 a.m.
Paper : "Veterinary Application of Antibiotics and other Modern Therapeutic Substances with Special Reference to Those Not in Common Use in the United Kingdom." (Author and Opener to be announced later.)
Chairman : Mr. W. J. B. Robson, J.P., M.R.C.V.S., D.V.S.M.
Recording Secretary : Mr. G. A. M. Sharman, M.R.C.V.S.

12 noon
Meeting of 1952–53 Council, B.V.A.

1.00 p.m.
Glasgow Veterinary School Alumnus Association Annual General Meeting and Lunch, Caledonian Hotel.

2.30 p.m.
Congress photograph.

3.30 p.m.
Annual General Meeting, B.V.A.

7.00 for 7.30 p.m.
Annual Banquet at Northern Hotel.

THURSDAY, SEPTEMBER 10th

10.00 a.m.
Paper : "Some Aspects of Veterinary Dermatology," by Mr. S. Jennings, M.R.C.V.S., University of Glasgow Veterinary Hospital.
Opener : Mr. E. F. Lewis, M.R.C.V.S.
Chairman : Mr. A. J. MacLennan, B.SC., M.R.C.V.S.
Recording Secretary : Mr. James A. Brown, M.R.C.V.S.

1.45 p.m.
Congress Excursion to Deeside.
Golf Competition, Bowling, etc.

6.30 for 7.00 p.m.
Royal Dick Alumnus Association Annual Genera Meeting and Dinner : Northern Hotel.

From 8.30 p.m.
Informal Social Evening, with some entertainment, at the Northern Hotel.

FRIDAY, SEPTEMBER 11th

10.00 a.m.
A Symposium of Short Papers :—
(*a*) Dr. J. G. Campbell, F.R.C.V.S. "Some Aspects of Research Work at the Poultry Research Centre, Edinburgh."
(*b*) Mr. J. A. Crichton, M.B.E., M.A., B.SC. "Experiments with Identical Twin Calves."
(*c*) Dr. K. L. Blaxter. "Muscular Dystrophy."
(*d*) Dr. W. S. Gordon, C.B.E., M.R.C.V.S., F.R.S.E., and Mr. J. H. Taylor, M.R.C.V.S. "Antibiotics in Animal Feeding-stuffs."
Chairman : Mr. A. Thomson, M.R.C.V.S.
Recording Secretary : Mr. J. Suttie, M.R.C.V.S.

2.30 p.m.
Visit to Rowett Research Institute by permission of Dr. D. P. Cuthbertson, F.R.S.E. (Director), and Dr. A. T. Phillipson, M.A., M.R.C.V.S. (Deputy Director).
Demonstration at V.I.O. Laboratory at North of Scotland College of Agriculture, arranged by Mr. P. L. Shanks, B.SC., M.R.C.V.S.
Films.

2.30 p.m.
Ladies' Excursion to Crathes Castle.

8.30 p.m.
President's Reception and Dance at the Northern Hotel.

SATURDAY, SEPTEMBER 12th

10.00 a.m.
Closing Meeting of Congress, followed by First Meeting of 1953–54 Council.

NOTES AND NEWS

Diary of Events

June 6th.—Meeting of the Scottish Branch, B.V.A., at Glasgow University Veterinary School, 2.30 p.m.

June 10th.—Summer Meeting of the Southern Counties Division, B.V.A., at Winchester. (See Notice.)

June 10th.—Meeting of Editorial Executive, B.V.A., 2.30 p.m.

June 11th.—Annual General Meeting of the Society of Practising Veterinary Surgeons, at Birmingham (The Grand Hotel), 12 noon.

June 11th.—Annual General Meeting of the National Veterinary Benevolent and Mutual Defence Society at Manchester (Midland Hotel), 2.30 p.m.

June 12th.—Meeting of the South Wales Division, B.V.A., at Aberystwyth, commencing at 11.30 a.m. (See Notice).

June 12th.—Annual General Meeting of the R.A.V.C. Division, B.V.A., in London (Room 350, The War Office, Main Building), 2.30 p.m.

June 12th.—Annual Dinner of the R.A.V.C. Officers' Club, at Grosvenor House, London.

June 17th.—Meeting of the Scottish Metropolitan Division, B.V.A., at Stirling (Golden Lion Hotel), 2.30 p.m.

June 18th.—Meeting of the Herts & Beds Division, B.V.A., at 70, Holywell Hill, St. Albans, 7.30 p.m.

June 18th.—Summer Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Wellcome Research Laboratories, Langley Court, Beckenham, Kent, 2 p.m.

June 19th.—Annual General Meeting of the Association of Veterinary Teachers and Research Workers (Scottish Regional Group) in the University of Glasgow Veterinary School, 2 p.m.

June 20th.—Meeting of the Biochemical Society in the Department of Biochemistry, University of Oxford, South Parks Road, Oxford, 11 a.m.

B.V.A. Technical Development Committee Two-day Meeting

Wednesday, June 24th
2.30 p.m., Technical Development Committee at 36, Gordon Square, London, W.C.1.

Thursday, June 25th
10.30 a.m., Technical Development Committee at 36, Gordon Square, London, W.C.1.

June 24th.—Meeting of the Supplementary Veterinary Register Division, B.V.A., at the Connaught Rooms, Great Queen St., Kingsway, W.C.2.

June 25th.—Meeting of the Western Counties Division, B.V.A., at the University of Bristol Veterinary School, Langford, 2 p.m.

July 23rd.—Meeting of the Midland Counties Division, B.V.A., at Nuneaton (The Newdegate Arms.)

July Meetings of B.V.A. Council and Committees
At 36, Gordon Square, London, W.C.1

Wednesday, July 29th, 1953.
11 a.m., Organising Committee.
2.15 p.m., Home Appointments Committee.
4 p.m., Parliamentary and Public Relations Committee.

Thursday, July 30th, 1953.
10 a.m., Veterinary State Medicine Committee.
12.30 p.m., Finance Sub-committee.
2 p.m., General Purposes and Finance Committee.

At the Connaught Rooms, Great Queen Street, W.C.2
Friday, July 31st, 1953.
11 a.m., Council meeting.

Aug. 9th—15th.—XVth International Veterinary Congress, Stockholm, Sweden.

Sept. 6th—12th.—Seventy-first Annual General Meeting and Congress of the British Veterinary Association, at Aberdeen.

R.C.V.S. Examinations

Thursday, June 4th.—D.V.S.M. Written Examination commences at Edinburgh (2 p.m.).
Monday, June 8th.—D.V.S.M. Orals and Practicals.
Thursday, June 25th.—M.R.C.V.S. Written Examinations.
Friday, June 26th.—Ditto.

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Royal College of Veterinary Surgeons

PROFESSOR R. E. GLOVER ELECTED PRESIDENT
COUNCIL ELECTION RESULTS

At a special meeting of the Council of the Royal College of Veterinary Surgeons held at the Royal (Dick) School of Veterinary Studies, University of Edinburgh, on Friday, May 29th, 1953, Professor Ronald Everett Glover, M.A., B.Sc., F.R.C.V.S., Professor of Veterinary Pathology in the Liverpool University Veterinary School, was unanimously elected President. He succeeds Professor John G. Wright, M.V.Sc., F.R.C.V.S., Professor of Surgery in the same School, who—now Senior Vice-President—has held the office of President with great ability and distinction since his election thereto on June 8th, 1951. A biographical appreciation of the new President will appear in an early issue. The Council unanimously elected Dr. W. R. Wooldridge, Scientific Director of the Animal Health Trust, as Junior Vice-President.

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Miss J. O. Joshua, F.R.C.V.S., Becomes First Woman Member of the Governing Body

At the annual general meeting of the Royal College held at the Royal (Dick) School of Veterinary Studies on Wednesday, May 27th, the following declaration regarding membership of the R.C.V.S. Council was made:—

Appointed by the Privy Council:

Sir Thomas Dalling;
Mr. J. N. Ritchie;
Captain J. A. L. Duncan, M.P.;
Mr. T. F. Peart, M.P.

Appointed by Universities:

Edinburgh: Professor G. F. Boddie is appointed as second representative.
Glasgow: Professor W. L. Weipers and Professor R. C. Garry are re-appointed.

Elected by Ballot:

Dr. R. F. Montgomerie	1,282
Professor L. P. Pugh	1,073
Mr. L. G. Anderson	1,014
Mr. T. M. Mitchell	986
Dr. R. Lovell	909
Mr. H. Sumner	856
Mr. J. B. White	660
Miss Joan O. Joshua	580

(The above-named were elected.)

Mr. W. T. Rowlands	544
Miss Olga Uvarov	381
Mr. F. B. Halpin	160

It is understood that at a meeting of the Veterinary Council of Ireland Professor P. E. Mullaney was returned unopposed as an elected member of Council R.C.V.S.

The first five persons in the above list will serve for four years. The sixth (Mr. Sumner) takes the place of Professor Boddie (now appointed by the University of Edinburgh) for the unexpired period of his term of office, *i.e.*, for three years. At the annual general meeting it was announced that Captain Procter had resigned from the

Council: Mr. White serves for his unexpired period of two years. Mr. Ritchie's appointment by the Privy Council created yet another vacancy: in his case the unexpired period is one year and is taken over by Miss Joshua. The election of Miss Joshua, however, is a noteworthy feature of this year's election. A practitioner, of Church End, Finchley, Miss Joshua, who brought great distinction to the ranks of our professional women in April 1950, by becoming the first woman graduate to secure the R.C.V.S. Fellowship diploma, now makes further veterinary history. Her election as the first woman member of the Governing Body of the profession is indeed a notable further achievement upon which all the members will congratulate her most heartily.

The total number of valid voting papers returned was 1,396, of which 146 were from overseas. Sixteen voting papers were invalid.

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PERSONAL

The Coronation Honours

Brigadier Heveningham and Mr. A. D. J. Brennan Receive the C.B.E.

The Honours to be conferred by the Queen to mark her Coronation were announced on Monday last. Their respective Services, in particular, and the general body of the profession will welcome with gratification two high distinctions—the award of the C.B.E. in the Order of the British Empire to Brigadier A. G. Heveningham, O.B.E., M.R.C.V.S., in well-merited recognition of his services as Director, Army Veterinary and Remount Services, since March, 1951, when he succeeded Brigadier J. J. Plunkett; also to Mr. A. D. J. Brennan, M.R.C.V.S., Deputy Chief Veterinary Officer in the Animal Health Division of the Ministry of Agriculture and Fisheries. Warm congratulations will be extended also to recipients of the O.B.E., in the Order of the British Empire in Captain Q. A. Stewart, M.R.C.V.S., Divisional Veterinary Officer of the Ministry's Animal Health Division, and Mr. I. A. Gillespie, M.R.C.V.S., of the Sudan Veterinary Service; also to Mr. E. F. Peck, Director of Agricultural and Veterinary Services, Somaliland, who is awarded the Imperial Service Order.

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Brigadier and Mrs. Heveningham at the Royal Garden Party.—Brigadier A. G. Heveningham, Director of the Army Veterinary and Remount Services, with Mrs. Heveningham, had the honour of invitation to Her Majesty's first garden party of the year at Buckingham Palace on the afternoon of Thursday, May 28th. The 7,000 guests included members of the Services and distinguished visitors from overseas and was in all respects a most felicitous prelude to the Coronation.

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The Coronation Horses.—The appearance and behaviour of the beautifully trained horses was the subject of admiring comment amongst the thousands witnessing the magnificent Coronation procession on Tuesday. Captain (QM) W. Richey, M.B.E., R.A.V.C., equitation instructor at the R.A.V.C. Depot and training officer for the Coronation horses, was selected to appear as one of the mounted marshals in the procession.

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Major R. C. Glover's Jubilee of Graduation.—Warm congratulations will be extended to Major Richard Clarke Glover, V.D., M.R.C.V.S., of Jamaica, on the pending attainment of the 50th anniversary of his graduation from the London College on July 16th, 1903—he being registered (however) on May 7th, 1904, his 21st birthday. The Association cabled its congratulations to Major Glover, in time for the celebration party arranged by its British Caribbean Division on May 29th.

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R.C.V.S. Fellowship Awards.—At the quarterly meeting of the Council of the Royal College of Veterinary Surgeons held on February 6th, 1953, it was announced that the Examination and Education Committee had awarded the diploma of Fellowship to Herbert Williams Smith, M.Sc., Ph.D., M.R.C.V.S., and to John William Macauley, B.Sc., M.R.C.V.S., D.V.S.M. The subject of Dr. Williams Smith's successful thesis was "Observations on the typing of Salmonellae by means of bacteriophage," that of Mr. Macaulay's being "Observations on control of foot-and-mouth disease in Southern Africa."

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Appointment as Justice of the Peace.—Mr. George N. Gould, M.R.C.V.S., has been appointed a Justice of the Peace for the Borough of Southampton.

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Election as Mayor.—We congratulate Mr. P. Dennis Dunn, M.R.C.V.S., upon his election as Mayor of Beverley, E. Yorks, for the ensuing year. It is interesting to learn, also, that three other members of the British Veterinary Association were present at the "Mayor Making"—Mr. W. B. Quarmby, M.R.C.V.S. (partner), Mr. G. Curry, M.R.C.V.S. and Mr. E. Varley, M.R.C.V.S. (with Mrs. Varley).

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Death of Miss E. S. Lepper.—A member of a well-known Aylesbury family, Miss Ellen Sarah "Nell" Lepper, died at her home, 7, Walton Terrace, Aylesbury, on May 18th. She was 85. Miss Lepper was the youngest daughter of the late Mr. G. A. Lepper, a Fellow of the Royal College of Veterinary Surgeons.

She always took a keen interest in the work of the Royal Buckinghamshire Hospital, of which she was at one time secretary and for many years on the hospital Board of Management. Keenly interested in all forms of sport, she was at one time honorary secretary of the ladies' section of the Ellesborough Golf Club and a first-class tennis player.

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Marriage.—Swarbrick—Robinson.—On May 23rd, 1953, Olaf Swarbrick, M.R.C.V.S., to Margaret Ann, third daughter of Captain and Mrs. Hugh Robinson, of Denman's Farm, Fontwell, Sussex.

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Birth.—Taylor.—On May 25th, 1953, at "Inverthorne," Thornholme Road, Sunderland, to Dora and George R. Taylor, a son.

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Members interested in the following are asked to communicate *as early as possible* with the General Secretary, B.V.A., 36, Gordon Square, London, W.C.1.

Dutch Exchange Visits

Would any member care to have a Dutch boy and his friend, both 17 years of age, to stay during August this year? The Dutch boy is the son of the General Secretary of the Dutch Veterinary Association, Dr. W. A. de Haan of Utrecht, and he would in exchange welcome English boys or girls on a return visit at Christmas or Easter time. The Dutch boys would like to stay in or near London if possible.

Swiss Veterinary Students

Two or three Swiss veterinary students are anxious to see veterinary practice in England during their holidays (one or two months) and have asked if any veterinary surgeons here would be willing to have them. Would any member be interested in this matter?

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R.C.V.S. OBITUARY

The Late Colonel C. H. S. Townsend, C.B.E., M.C., T.D., F.R.C.V.S.

A Tribute

The veterinary profession has lost a most valuable and respected member in the sudden death, whilst playing polo, of Colonel C. H. S. Townsend, C.B.E., M.C., recorded in your last issue.

"Mouse," as he was affectionately called by his many friends in the hunting and racing worlds, was the son of a veterinary surgeon, and the brother of another—Major C. W. Townsend, who happily is still with us. Qualifying in 1914, he at once joined the R.A.V.C. in France, and whilst there won the M.C. It was also in France while behind the lines that he first learned to play polo with some of the well-known horsemen of that day.

He had the horses, they had the experience, so it was a fair exchange.

After the war he remained in the R.A.V.C., serving in India amongst other places. He retired from the Army just before the last war, and took over the joint mastership of the South Atherstone Hunt. At the outbreak of war he rejoined the army, and for his services was awarded the C.B.E. Afterwards he became master of the Badsworth Hunt and later the V.W.H. (Earl Bathursts).

Settling down at South Farm, Quenington, Gloucestershire, he started farming and at the same time built up an extensive practice in the hunting and racing worlds. His opinion was greatly respected, and how often have we seen on hunter sale catalogues at Leicester and elsewhere "veterinary certificate by Colonel Townsend." He was a skilful operator and was perhaps best known for his operation for roaring, for which he travelled all over the British Isles, and which was quickly and efficiently done under only a local anaesthetic.

A quiet man, Townsend did not suffer fools gladly, but he was only too ready to help to the extent of his not inconsiderable ability any student who was keen, and willing to learn. Any student who has worked with him could not but help develop a deep respect and liking for this man.

Horses were his life, and right well he served them. He was much sought after as a judge by all the leading shows.

To his wife (herself a noted horsewoman), his son John, and daughter Ann, our sympathy goes in this sad bereavement.

P. H. M.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax:

Cornwall.—Hilly Field, "Gwallon," Marazion (May 25).
Essex.—14, Smallholdings, Eastwoodbury Lane, Eastwood, Southend-on-Sea (May 25).
Lancs.—Isherwood Fold Farm, Edgeworth, Bolton (May 25); Burns Farm, Barnacre, Garstang, Preston (May 27).
Salop.—Church Farm, Loppington, Wem, Shrewsbury (May 26).
Wilts.—Browns Farm, Fyfield, Marlborough (May 25).
Yorks.—Moor Farm, Bellerby Camp, Leyburn (May 27).

Fowl Pest:

Hants.—46, Churchill Crescent, Hawley Estate, Farnborough; 114, Fernhill Road, Cove, Farnborough; 94, Minley Road, Cove, Farnborough (May 28).
Lancs.—Ribble Bank Farm, Hesketh Bank, Preston (May 27).
Surrey.—34, Heathervale Road, New Haw, Weybridge; 93, Foxburrows Avenue, Guildford (May 25).
Yorks.—Battery Rearing Plant, Crag Road, Mytholmroyd, Halifax (May 25).

Swine Fever:

Beds.—Standalone Farm, Haynes, Bedford (May 26); Home Farm, Salph End, Renhold (May 28).
Cornwall.—Chapel Uny Farm, Sancreed, Penzance; Tregellis, S. Petherwin, Launceston (May 25).
Denbigh.—Ridley Wood Farm, Holt, Wrexham (May 26).
Derbys.—Old Engine Lane Farm, Ashover (May 25).
Dorset.—Orchard Farm, Stalbridge (May 25).
Essex.—Sandy View, Wicken, Nr. Newport; Gerpins Farm, Gerpins Lane, Upminster (May 25); Pig Sties, Sunrise Meadow, Knowles Farm, Wickham Road, Hatfield Peveril (May 27).
Gloucs.—G.W.R. Sidings off Alfred Street, Gloucester (May 26); Baldwyn's Farm, Newent; Ivy House, Dymock (May 28).
Herts.—Southend Cottages, Stoneyhills, Stapleford (May 25).
Isle of Ely.—60, High Street, Benwick; Coveney Road, Wardy Hill (May 27).
Lancs.—Vale Lane Farm, Woodhouses, Ashton-under-Lyne (May 25).
Leicester.—Park Lane, Bagworth (May 27).
Lincs.—Drain Bank, Friskeney; West View, Waddingham, Gainsborough (May 28).
Montgomery.—Llwynygog, Caerws (May 25).
Norfolk.—Owen Piggeries, Upgate, Swannington (May 26).
Northants.—Eden Bungalow, 31, Towcester Road, Blisworth; No. 2 Allotment, Dallington Allotments, Northampton; 9, Vicarage Lane, Kingsthorpe (May 27); Wakefield Lodge Estate, Paulerspury (May 28).
Salop.—The Cottage, Old Hardwicke, Ellesmere (May 26).
Staffs.—The Hermitage, Victoria Street, Wall Heath (May 26); Piggeries, Udall's Allotment, Northwood, Stoke-on-Trent; 8, Drive Fields, Lower Penn (May 28).
Suffolk.—New House Farm, Poslingford, Sudbury; Upper Abbey Farm, Leiston (May 26); Rookery Farm, Yoxford, Saxmundham (May 27); 59, Derby Road, Beccles; Green Farm, Henham, Nr. Beccles (May 28).
Worcs.—Lower House Farm, Chaddesley Corbett, Kidderminster (May 26); Eymore Farm, Trimpley, Nr. Bewdley (May 27).
Yorks.—24, North Street, Thackley, Bradford; 26, Coxley Lane, Coxley, Middleston, Wakefield (May 26); Holme Farm, Bridge House, Haworth, Keighley; Ton House Piggeries, Churwell (May 28).

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IMPROVING ANIMAL HEALTH IN THE NEAR EAST

In a Press release from Rome, FAO states that two meetings, one recently held in Damascus, Syria, the other shortly convening in Cyprus, and both sponsored by FAO, show the great attention now being paid to improving animal health in the countries of the Near Eastern region. The first meeting was called at short notice to discuss the serious situation created, principally in Syria, by recent outbreaks of foot-and-mouth disease in this region. The Syrian Government acted as hosts for this meeting, which was attended by delegates from eight countries, together with observers from various organisations including The International Office of Epizootics, TCA, the Mutual Security Agency and the British Middle East Office.

The principal outcome of this meeting was a request that FAO should prepare a draft Constitution, for a Near Eastern Foot-and-Mouth Disease Commission, as a basis for further discussion at the later meeting in Cyprus. Such a Commission would be based on that now coming into operation in Europe, and also sponsored by FAO, but would have certain modifications to suit the rather different conditions in the Near East. In particular, the meeting pointed out, livestock being less concentrated and communications less easy, the disease does not spread so rapidly; on the other hand, quarantine is difficult because of the large amount of movement of livestock between many of the countries of the region. There is also no central laboratory for diagnosis and typing of viruses, and material must be sent to Europe for typing, thus causing loss of time in dealing with outbreaks. Outbreaks are isolated by vaccination of all animals in the neighbourhood, and the policy of ensuring a belt of vaccined areas along national frontiers limits the spread of the disease between countries.

Besides the suggestion for a regional Commission, and for other close international co-operation in the region, it is also suggested that a central laboratory for diagnosis, research and the typing of virus and later for possible vaccines production, be established in one of the countries of the region; Syria and Turkey were suggested as possible sites.

The Cyprus meeting, which is concerned with general problems of animal health in the Near East, will spend the whole of its first day's discussions on this same foot-and-mouth disease problem. Thereafter, a very complete agenda, including discussion of the whole range of serious animal diseases affecting the region, will fill the rest of a week. These include rinderpest, Newcastle disease and other diseases of poultry, anthrax, brucellosis and haemorrhagic septicaemia. Discussions on quarantine and livestock breeding policies are also on the agenda; so is the running of a training centre, probably during 1954, on the production of veterinary biologics and vaccines. Such a training centre would come under FAO's Expanded Technical Assistance Programme, which has already run centres of a roughly similar nature elsewhere during the past two years. In this connection, it is pointed out that FAO has some 11 veterinarians at work under this programme in the Near Eastern countries, and the services of a number more have been requested. The Cyprus meeting will also cover a wider range geographically, as well as in subject matter, than that at Damascus, since Libya to the West, and Afghanistan on the East, have also been invited; FAO will be represented by a strong team from its Animal Production Branch.

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Livestock Problems: "The Challenge of the Future"

As a feature of its Coronation Number of May 19th, the *Farmer and Stock-breeder* published in five articles the considered findings of a "group of informed men of science and practice" who, following a series of panel discussions in London, enabled it to secure informed opinion on how to meet "The Challenge of the Future."

The panel devoting its energies to the consideration of livestock problems included Dr. A. D. Buchanan-Smith, the Edinburgh University animal geneticist; Mr. James McIntosh, for 25 years Head of the Dairy Husbandry Department of the N.I.R.D.; Mr. G. N. Gould, M.R.C.V.S.; Professor J. E. Nichols, Professor of Animal Husbandry in the University College of Wales; Dr. John Hammond, of Cambridge, and Dr. Joseph Edwards, Head of the Production Division of the Milk Marketing Board.

"Better Cows the Key"

In the course of its report on the deliberations and findings of this panel, published under the heading "Better Cows the Key," the *F. & S.-B.* makes the introductory point that, to quote one of its members, "the crux of the problems of the farming industry" is to obtain higher output by increasing the efficiency of our dairy herds to such an extent that they take less land, so making room for other types of stock and for cereals. The article continues: "Many ideas for lifting output were put forward in discussion covering cattle, sheep and pigs, not all, of course, agreed unanimously. But the following will probably prove the most far-reaching suggestions, and they were generally supported.

(1) Lengthen the productive life of dairy cattle both by earlier calving (at two years) and better disease control.

(2) Rear a lot of the calves, mostly autumn-born, now being wasted. They should be multiple-suckled.

(3) Encourage pig (as well as milk) recording—it is a measure of management and will focus attention on weaknesses.

(4) Develop intensive sheep husbandry on grassland.

(5) Spend much more money on veterinary research.

"If milk yields are pushed up we can, as the Government expects, get at least our present milk from fewer cows. The panel felt that we were carrying too many followers; that output per cow could be increased both by better disease control (so extending life) and by bringing the cattle earlier to profit. . . . Longer life, earlier breeding, shorter calving intervals (a calf a year, save when the gailonage was well up in four figures) could all put up output. And the present swing to dairy breeds was estimated ultimately to raise yields by as much as 100 gallons a cow. Very shortly the national milk herd will, it was predicted, consist of 65 per cent. pure dairy cattle and 35 per cent. dual-purpose—reversing the pre-war figures—if present trends in A.I. continue. That yields could certainly go considerably higher, everyone agreed. But whether the oft-quoted ideal of 1,000 gallons on grass and its products could be achieved by the average farmer in the face of our special problems with winter milk there seemed some doubt. Exceptional men certainly did it and their achievements deserved, the panel thought, to be more widely studied and publicised."

Artificial Insemination

Most people would agree that the spread of artificial insemination has been the most spectacular development in dairy cattle during the past quarter-century. How much further yet will it expand? "Until all the commercial herds and half the pedigree herds use it" came one suggestion. The proviso was made that some large commercial farmers will still have to keep a bull to serve outlying heifers, but no alternative estimate was put forward. It was not contested that little development of A.I. was likely in pure beef herds.

"There is, however, one aspect of A.I. that is causing a great deal of concern among certain authorities—and is as readily dismissed as unfounded by others. Are we going to reach a stage when the sources of good bulls will dry up? Pedigree breeders are saying—and, of course, their view was put on the panel—that bull breeding is rapidly becoming not worth while. Admittedly the A.I. service will buy a few of the very best bred bulls, but the sale of these select few is not the back-bone of the business. One body of thought on the panel said that with fewer and fewer breeders finding their job worth while we should 'narrow the base' too much, lose good blood lines and get over-standardisation. We could lose, too, many of those exceptional men who had the flair for breeding; and lose those good bulls that just turned-up in little-known herds, and always would. The breeds would be spoiled by control by too few herds. The contrary view was that such talk had been going on ever since A.I. began; that it was a good thing fewer and better bulls were being reared; that A.I. would hold up and improve the market for the best; and that there never had been very many exceptional breeders in any one breed at any one time.

"A recent development noted in this sphere was that of A.I. stations breeding their own bulls—buying back the calf in much the same way that the stallion owner has first call on foals bred by his stallion from other people's mares. 'But at what price?' one can hear the breeder asking. If A.I. goes on spreading as anticipated we shall have 'a country of pedigree dairy stock,' one man put it. What would the function of breed societies become; should they go on expanding membership or concentrate on the élite?

"On deep-freeze the point was made that it had the revolutionary possibility of giving to the small man the advantages of the big man, now alone able to afford the very best bulls."

The Small Marginal Farm

A lot of time was devoted to the problems of the small marginal farm whose traditional function was rearing beef stores. While emphasising that every farm must grow all it could, the panel did not think that self-sufficiency in the sense of a little of many things on all farms was sound. The extreme war-time contention of self-sufficiency should disappear. "Where are the store stock coming from to replace all those that once were imported from Ireland? The general feeling was that the dairy herds must provide them, and the future should see a far greater effort to rear many of those calves that are at present being wasted. One-third of calves born in dairy herds should be colour-marked crosses for rearing, it was argued. They should be transported from the dairy districts to rearing farms to be brought up on the multiple suckling system. Already there was a huge trade in calves to Scotland (the foot-and-mouth investigations showed last year that it was on such a scale that it could not possibly be stopped) and similar channels to other rearing areas should be enlarged."

Dehorning

Dehorning is much in the public eye. Several demonstrations have lately been held in rearing areas to try to persuade rearers to do more of it. The panel discussed incentives for dehorning stronger than that of price, usually £1 per head or more. A differential calf subsidy, so long as the difference was not so great as to lessen the subsidy's effect in getting calves reared, found a lot of favour. There was the alternative of breeding polled cattle. The panel thought the Ministry was wrong in discouraging the development of polled strains in the horned breeds. They might well be not so good for beef as their horned brethren, but "let breeders find out."

Quality or Quantity

"In most types of livestock there is a school saying that we cannot afford the very best and consumers must put up with the sort of product we can most easily produce in bulk; the other school says that high quality is not incompatible with the most economical use of our resources, and it encourages efficiency by bringing out the best in breeder and feeder. Generally speaking, our panel took this last view.

"Arising out of this discussion, we heard diverging views on future pig policy. Should we go for a heavier pig? Those who opposed the idea said the extra weight was fat, which was not wanted and could in any case be much more cheaply produced from vegetable crops. The sponsors of the heavier pig held that it enabled more meat to be produced from a given number of sows, and if necessary we should look for a pig that could be fattened to a heavier weight without putting on a lot of fat. On pigs there arose, of course, the question of whether we have too many breeds. We heard that we need both black and white pigs, because the former flourished in war, the latter in peace; that the breeds should be reduced to five; that 'any attempt to knock a breed on the head would mean its survival at all costs'; and that we had best leave the number of breeds to be decided by profitability. . . . On pig recording there was all-round agreement—it would give quick improvement by raising management standards. The N.A.A.S. should push it, for, like milk recording, it gave a measure of management.

"A statement that 'We are experiencing heavy litter losses, so heavy that they would shock people,' underlined the importance of pig management. Warmth in housing was emphasised; the important thing, it seems, is to keep to a minimum the difference between day and night temperature in rearing houses. Arks, for instance, maintain heat.

"Pigs are expanding fast, some say too fast. The panel thought we should have for the future a plan to fight swine fever just as we had one against foot-and-mouth. Demand for vaccination against this pig disease fever is small, says the veterinary profession: it costs too much, says the farmer. At this panel both opinions were ventilated. There was general agreement, however, that we do need more research on pig housing.

"The consensus of opinion of this panel was certainly that we should have more sheep, despite the trouble from dogs and the need for fencing. 'People don't realise their profitability,' it was stated, and quick turnover and small outlay were underlined. One could increase grass on so many dairy farms where buildings limited cow numbers. That snag did not exist with sheep, and we heard of such farms where sheep were being successfully folded with pig netting. Intensive sheep husbandry on grassland had a lot of support as future policy."

Demands for Increased Financial Support for Veterinary Research and for Veterinary Supervision of Meat Inspection Service

"Considerable dissatisfaction was expressed as to the inadequacy of our veterinary research. The value of the grass crop was contrasted with the 'ludicrously small amount' being spent on research into the disease problems associated with it. An answer strongly supported was that there ought to be a Veterinary Research Council, perhaps with responsibility to the Agricultural Research Council. At any rate, this new body would be able to influence the direction of research.

"Another concrete suggestion in this field was that there should be veterinary supervision of the meat inspection service. This would, one speaker argued, have enabled us to have had warning of the spread of Johne's disease, the 'biggest killing problem on the farm to-day.'

"Throughout the day the subject of management kept cropping up. One man went so far as to say that management was concealing the genetic ability of our dairy cattle by half—though it was said that at the same time we had to keep the emphasis on breeding good stock, for that, through the pride of possession of something worth while, had its indirect effect on management.

"Finally, there was the close relationship between good management and disease losses. So many of those losses could be prevented if, in the future, we could raise the standard of stock husbandry—that seems the point to keep uppermost in our minds."

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FOG FEVER SYNDROME IN PARASITIC BRONCHITIS

Mr. J. F. Michel, of the Ministry of Agriculture's Veterinary Laboratory at Weybridge, makes the following contribution to the issue of *Nature* dated May 23rd, 1953.

Two years ago, Hudson, working at this laboratory, described a syndrome that he had observed in adult cattle, of which pulmonary oedema was a feature. He suggested that it might be due to an allergy associated with the small number of lungworms that he noticed were present.

Field studies have shown pulmonary oedema and emphysema to be a common feature of parasitic bronchitis in the adult bovine. The helminthological picture in such cases is very variable. At one extreme there may be large numbers of mature worms present, while at the other only a score or so of microscopic worms may be recovered. Since the development of the worms in the resistant host is often inhibited, their size gives but little indication of the time at which they were picked up.

Clinically, outbreaks of husk in adult cattle make themselves manifest either by a qualitatively uncharacteristic cough, or else, where pulmonary oedema or emphysema or both are present, by a syndrome very closely resembling the condition known as "fog fever." This is characterised by dyspnoea and crepitant or squeaking rales. The animal stands with its head stretched out, mouth open and tongue protruded, the ribs are held out and breathing is shallow, rapid and abdominal. The temperature is sometimes high, sometimes normal and may even be subnormal. Generally there is a loud expiratory grunt or groan. Coughing is relatively infrequent.

The occurrence of this syndrome is not confined to adults, and we have observed it in calves after three weeks of exposure to exceptionally heavy natural infection with *Dictyocaulus viviparus*.

We have also been having considerable success in producing the syndrome by the artificial administration of the infective larvae of *D. viviparus* to young cattle kept under worm-free conditions. We are not able to produce the condition in every animal at will; nor is every case as spectacular as the most acute cases encountered in the field; nor yet is the proportion of deaths any higher than it is in naturally occurring outbreaks. In the 24 animals of the present series that have survived the first two months of the initial infection, the syndrome has been observed 12 times. There have been three deaths.

The syndrome, as so far observed, may be recognised as occurring at three stages in our experimental husk infections. Six cases occurred about the time that the initial infection was being spontaneously terminated. Two cases were seen some months after the initial infection had been eliminated, and we believe they may have been associated with the resumption of growth by worms that had been inhibited in their development. Four cases occurred about 12 days after the re-infection of animals that had thrown off the initial infection some time before.

The four circumstances in which the syndrome has been observed, that is, three weeks after first exposure to infection, 12 days after re-infection, about the time the initial infection was being thrown off and when previously inhibited forms may have been resuming their development, are all times at which one might reasonably expect some kind of immune response to be taking place. This would suggest that the condition, the pathology of which resembles that of an allergy, may indeed be related to such a response.

It will be noticed that in the three sets of circumstances in which our artificial fog fevers occur, mature worms will be either few in numbers or absent, while in those cases associated with the spontaneous termination of the infection even immature worms may not be present. This possibility means that the value of *post-mortem* examination in assessing the cause of naturally occurring cases of fog fever is limited. None the less, the examination of lungs from cases that have been diagnosed as fog fever by clinicians has so far revealed the presence of at least a few lungworms in all six of the lungs that have reached us in good condition.

It would appear from these findings that a proportion of fog fever cases are undoubtedly the consequence of lungworm infestation. The possibility that all fog fevers are associated with this cause cannot be discounted at this stage.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

THE PRACTITIONER AND HIS DRUGS

Sir,—I would like to endorse whole-heartedly the sentiments expressed by Mr. Rose in his letter published in your issue of May 9th and to congratulate him on his summing-up of the situation.

I have now read, with mixed feelings of amusement and slight disgust, the letter from Mr. J. S. Horridge, M.P.S., appearing in to-day's issue of *The Veterinary Record*. I feel that some reply is necessary to the points which he has made ; though I am sure that mine will not be the only comments.

I would like to deal first with the four main purposes of the proposed formation of an association of veterinary pharmacists.

(*a*) *To promote the professional status and interests of veterinary pharmacy.*—In this country, where there is an adequate cadre of qualified veterinary surgeons, there is no good reason why "veterinary pharmacy" should be given any professional status whatever. To grant any recognition of these self-termed "veterinary pharmacists" would be quite contrary to the spirit of the Veterinary Surgeons Acts of 1881 and 1948 and would only lead to confusion in the minds of the public.

To talk of promoting the status of veterinary pharmacists is therefore quite absurd. No benefit would accrue to the veterinary profession, the farming community or the general public and such promotion would be only to the advantage of the pharmacists themselves.

(*b*) *To encourage liaison between veterinary surgeons and pharmacists.*—Good business relationship is already established between the veterinary profession and those pharmacists who appreciate their proper function in our community and do not attempt to interfere with the present cordial relations which exist between veterinary surgeons and their clients. Two is company, while three is definitely a crowd ; and I feel sure that the friendship and mutual respect, which now exists between the veterinary surgeons and the great majority of the farming community and animal-owning section of

the general public, would only be adversely affected by interference from " veterinary pharmacists."

(*c*) *To facilitate the interchange of information in matters concerning veterinary pharmacy.*—What better machinery could we have for such interchange than exists already between our profession and the well-known, firmly established and well-respected firms of manufacturing chemists ?

These established houses welcome comments on the practical value of their products from practising veterinary surgeons, are always open to receive suggestions from us for the production of pharmaceuticals which we think will be useful and, in turn, place at our disposal, through their excellent literature or publications in our journals, the results of research carried out by their staffs of pharmacists, biochemists and veterinary surgeons.

This satisfactory state of affairs provides mutual benefits to the drug houses and our profession.

I assume that Mr. Horridge would like the interchange of information to be facilitated between our members and the retail chemists or pharmacists. The veterinary profession would have nothing to learn from them ; and again, the benefits of this interchange would be solely to the retail pharmacists themselves.

(*d*) *To oppose such restrictive practices and unfair trading as are contrary to the national interest and to the interest of the veterinary pharmacists.*—The restrictive practices and " unfair " trading may be contrary to the interest of the " veterinary pharmacists " in that they cannot legitimately make profits from the unrestricted sales of certain pharmaceutical and biological products ; but I fail to see how the National interest suffers.

Certain products are available to our clients only through ourselves ; either by direct sale or from a chemist on our prescriptions.

We can supply the farming community or any other animal owners with these products in whatever quantity is necessary for the proper treatment of the particular disease from which an animal or group of animals is suffering. If need be, we undertake the correct administration of the products ourselves ; or see to it that the animal owner is given precise instructions for their administration.

We supply, or administer, these products, at the right time, *i.e.*, when we are satisfied that such treatment is necessary ; at the right place, *i.e.*, usually on the farm or in the home, at the time of our visit to diagnose the condition ; and in the right quantity, *i.e.*, enough only to treat the animal or animals at the right dosage, with no waste to the owner. This service is available from us at any hour of the day or night, when necessary, on week-days, at week-ends and on public holidays. This may be a restricted practice; but it can hardly be termed contrary to the National interest.

The " veterinary pharmacists " would like to retail these products—without taking any responsibility for diagnosis ; without caring whether the particular product is the one indicated for the condition to be treated ; without thought as to how much will be wasted ; and, of course, without interference with the requirements of the Shop Hours Act.

Now to turn to certain points made by Mr. Horridge in his letter.

His contention is that a pharmacist should be knowledgeable enough to be able to advise his client when to seek the proper advice of a veterinary surgeon. Firstly, it seems to me that a retail pharmacist has no right to assume the rôle of consultant ; and the term customer would be more correct than client. Next, I would add that a little knowledge is notoriously dangerous and the best advice that a retail chemist can give to his customer is to consult his veterinary surgeon if there is any doubt at all as to the trouble affecting his livestock.

I think Mr. Horridge exaggerates the question of ill feeling between the veterinary profession and pharmacists. As far as I am aware our profession entertains no ill feeling towards the pharmacists, though some of the latter appear to grudge us our privileges. Most of us simply regard the attitude of some retail chemists in this matter as pure impertinence. Our wish to keep control of certain potentially dangerous products is mainly in the interest of the general public, to some extent in our own interest as a profession, and regrettably, but necessarily, contrary to the profit-making interests of the retail pharmacists.

The " better feeling " is no more apparent among younger veterinary surgeons ; as no real ill feeling existed among the older ones.

Mr. Horridge is quite correct in his assertion that veterinary students in our colleges are now taught the art of writing prescriptions ; as, indeed, has been the case for a century or so !

I wonder if Mr. Horridge realises how old a profession ours is? For his information and that of his colleagues, I give the following details which are, of course, familiar to most of your readers.

Veterinary colleges were established in London and Edinburgh in 1791 and 1823 respectively, and these two schools granted certificates of competence to practise the veterinary art until 1844 ; by which time there were approximately 1,000 qualified veterinary surgeons in practice. These graduates were granted a Royal Charter in 1844, forming them into a corporate body, " The Royal College of Veterinary Surgeons." From that time the courses of study were directed by the R.C.V.S. By 1876 the course of study was three years, increased to four years in 1895 and to five years in 1932. So, perhaps Mr. Horridge will realise that we are not exactly beginners in our profession and that we have been able to write prescriptions for quite a long time.

Again for Mr. Horridge's benefit, I would add that in addition to the art of writing prescriptions we are taught chemistry, physics, botany and zoology to Inter. B.Sc. standard ; veterinary anatomy to a high standard ; physiology, biochemistry, materia medica and pharmacology to the same standards as medical students ; pathology, bacteriology and parasitology to standards somewhat higher than most medical students. We are also taught our own special lines of veterinary hygiene, dietetics and animal management. After all these pre-clinical subjects, we are finally taught veterinary medicine, surgery and obstetrics.

Mr. Horridge then goes on to state that " the pharmacist is recognised as the right and proper person to dispense and supply drugs." This is true, but he is not the only person entitled to do so ; and in the interests of the public such dispensing and supplying of potentially dangerous drugs is only allowed on the directions of a qualified veterinary surgeon, medical practitioner or dental surgeon ; who, if they prefer it, may elect to do their own dispensing.

The pharmacist is *not* the right and proper person to prescribe treatments and must not be recognised as such.

Mr. Horridge and some of his colleagues are anxious for existing restrictions to be relaxed, so that they can " compete " with us in the retailing of various products. Their anxiety must be due entirely to the profit motive.

We are anxious to maintain the restrictions ; not from a profit motive, but to ensure that proper use is made of certain drugs and biologicals and that we, who are the only persons qualified to do so, should be allowed the privilege of maintaining an efficient veterinary service to the public.

It is significant that the would-be " veterinary pharmacists " are so anxious to handle those products—such as tubes of penicillin, tablets of the various sulphonamides, vaccines, sera, etc.—which are all so beautifully packed by the manufacturers and so easy to hand out to the customer, without any proper dispensing. I wonder if they would be so interested in veterinary science if we all ran our practices entirely on a prescription basis and asked them to *dispense* bulky compound powders for cattle, and various mixtures which we use and which still have important places in our therapeutics, despite the sulphonamides and antibiotics.

In spite of the specious arguments which they advance, it is obvious that the " veterinary pharmacists " are interested only in the profits to be made from the sale of the products in question. But surely, Mr. Horridge and his colleagues have sufficient scope for profit making ; not only in dispensing National Health prescriptions but also in retailing such wares as tooth-pastes, toilet soaps, razor blades, cameras, films, sun-tan lotions, hair-brushes, weed-killers and milk beverages ; quite apart from the innumerable proprietary medicines consumed by a misguided public ; and not to mention wines and spirits, " our gift department " at Christmas time ; and, of course, the penny-in-the-slot weighing machine just inside the shop door ! All this should keep them busy and keep their " professional status " in its right perspective ; without their butting into the field of veterinary medicine.

I feel confident that the old-established firms who confine the sales of their products to our profession will not be easily coerced into lowering their ethical standards.

In conclusion, I echo Mr. Rose's hope that our elected representatives will stand firm in this matter, do everything in their power to maintain our present controls and make no concessions at all to the retail pharmacists.—Yours faithfully, F. G. Waddington, "Limuru," Thetford Road, Watton, Norfolk. *May 23rd*, 1953.

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R.C.V.S. COUNCIL ELECTION

Sir,—May I, through the courtesy of this column, express my gratitude to all my colleagues who voted for me in the election for Council, R.C.V.S.

Their friendship and support are greatly valued.—Yours faithfully, Olga Uvarov, The Old House, Cobham, Surrey. *May 30th*, 1953.

Messrs. Allen & Hanbury have asked us to inform our readers that their new preparation "Dapsetyn" (advertised in our issue of May 30th) for the two-fold treatment of acute mastitis, will not be available until the end of June. Literature and a sample will then be forwarded on request.